

THAT WHICH IS CLAIMED:

1. A loading device for applying a load to a surface of a composite structure during a non-destructive inspection of an area of the structure, the loading device comprising:

- 5 a load indicator to indicate the load applied to the structure;
 a connector for connecting the load indicator to the surface of the structure being inspected;
 a load applicator in mechanical communication with the connector and the load indicator for applying the load to the structure; and
10 a support for supporting the load indicator and connector, wherein the support contacts a surface of the structure proximate the area of the structure to be inspected.

2. A loading device according to Claim 1 wherein the support comprises three legs and a plate connecting the three legs, wherein an end of each leg opposite the plate contacts the surface of the structure and wherein the load indicator is attached to
15 the plate.

3. A loading device according to Claim 2 wherein each end of the legs opposite the plate comprises a protective end for contacting the surface of the structure.

4. A loading device according to Claim 2 wherein the load indicator
20 comprises a first standoff on a side of the load indicator and a second standoff on an opposite side of the load indicator and wherein two support hooks protrude from the plate of the support such that each standoff engages a support hook to support the load indicator and the connector.

5. A loading device according to Claim 2 wherein the legs define an
25 adjustable length so that the loading device is capable of applying the load while contacting a non-planar surface of the structure.

6. A loading device according to Claim 1 wherein the load applicator
 comprises a turnbuckle that attaches the connector to the load indicator, wherein the load is applied by rotating the turnbuckle to create tension between the connector and
30 the load indicator.

7. A loading device according to Claim 1 wherein the load indicator comprises a dial for indicating the load.

8. A loading device according to Claim 1 wherein the connector defines a threaded orifice for threading onto the surface of the structure.

5 9. A loading device according to Claim 1 wherein a protrusion is removably adhered to the surface of the structure and the connector is connected to the protrusion.

10 10. A loading device for applying a load to a surface of a composite structure during a non-destructive inspection of an area of the structure, the loading device comprising:

 a load indicator to indicate the load applied to the structure;

 a load applicator in mechanical communication with the load indicator and the structure for applying the load to the structure; and

15 a support for supporting the load indicator and the load applicator, wherein the support contacts the surface of the structure proximate the area of the structure to be inspected, the support comprising:

 a plate, wherein the load indicator is attached to the plate; and

 at least three legs defining an adjustable length connected by the plate for contacting the surface of the structure.

20 11. A loading device according to Claim 10, further comprising a connector for connecting the load indicator to the surface of the structure being inspected, wherein the connector is in mechanical communication with the load applicator, the load indicator, and the surface of the structure.

25 12. A loading device according to Claim 11 wherein the connector defines a threaded orifice for threading onto the surface of the structure.

 13. A loading device according to Claim 11 wherein the load applicator comprises a turnbuckle that attaches the connector to the load indicator, wherein the load is applied by rotating the turnbuckle to create tension between the connector and the load indicator.

14. A loading device according to Claim 11 wherein a protrusion is removably adhered to the surface of the structure and the connector is connected to the protrusion.

5 15. A loading device according to Claim 10 wherein each end of the legs opposite the plate comprises a protective end for contacting the surface of the structure.

10 16. A loading device according to Claim 10 wherein the load indicator comprises a first standoff on a side of the load indicator and a second standoff on an opposite side of the load indicator and wherein two support hooks protrude from the plate of the support such that each standoff engages a support hook to support the load indicator and the load applicator.

17. A method of applying a load to a surface of a composite structure during a non-destructive inspection of an area of the structure, the method comprising the steps of:

15 positioning a support on the surface of the structure such that the support contacts the surface proximate the area of the structure to be inspected;

connecting a connector to the surface of the structure;

attaching the connector to a load indicator that indicates the load and that is supported by the support; and

20 adjusting a distance between the connector and the load indicator to apply the load to the surface of the structure.

18. A method according to Claim 17 wherein adjusting the distance between the connector and the load indicator comprises rotating a turnbuckle.

25 19. A method according to Claim 17 wherein positioning the support comprises the adjusting of a length of one or more legs of the support.

20. A method according to Claim 17 wherein connecting the connector comprises threading the connector onto the surface of the structure.

21. A method according to Claim 17, further comprising the step of adhering a protrusion to the surface of the structure such that the connecting a connector to the surface of the structure comprises connecting the connector to the adhered protrusion.

5 22. A method according to Claim 17, further comprising the step of performing a non-destructive inspection of the area of the structure.